

#171A

**Claim 2, as amended:**

The system of claim 10 wherein the electrodes are data electrodes.

**Claim 3, as amended:**

The system of claim 10 wherein the electrodes are scan electrodes.

**Claim 10, as amended:**

A system for driving a flat panel display having electrodes, the system comprising:

a register capable of storing a plurality of display bits each bit representing a next state for a corresponding electrode;

a latch connected to the register and having outputs, each output representing a current state for a corresponding electrode;

logic circuits corresponding to the electrodes, each logic circuit generating a plurality of control signals based on the next state and the current state of the corresponding electrode; and

a plurality of change up switch elements, each change up switch element having an input connected to a change up control signal from a corresponding logic circuit, a first terminal connected to a change up signal, and a second terminal connected to the corresponding electrode; and

a plurality of change down switch elements, each change down switch element having an input connected to a change down control signal from a corresponding logic circuit, a first terminal connected to a change down signal, and a second terminal connected to the corresponding electrode; and

wherein the logic circuits are configured such that the logic circuit control signals substantially simultaneously connect the change up signal to electrodes having a low current state and a high next state, and the change down signal to electrodes having a high current state and a low next state; and

an oscillator circuit having a first sinusoidal output connected to each change up switch element first terminal, and a second sinusoidal output connected to each change down switch element first terminal, wherein the oscillator circuit is configured such that signals at the first and second sinusoidal outputs are about 180 degrees out of phase with each other.

**Claim 12, as amended:**

The plasma display panel of claim 23 wherein one or more group of electrodes are data electrodes.

**Claim 13, as amended:**

The plasma display panel of claim 23 wherein one or more group of electrodes are scan electrodes.

**Claim 14, as amended:**

The system of claim 10 further comprising:

A plurality of first diodes connecting the change up switch element first terminals to the change up signal, each first diode having a cathode connected to a corresponding change up switch element first terminal and an anode connected to the change up signal to prevent current from leaking into the change up signal; and

A plurality of second diodes connecting the change down switch element first terminals to the change down signal, each second diode having an anode connected to a corresponding change down switch element first terminal and a cathode connected to the change down signal to prevent current from leaking from the change down signal.

**Claim 16, as amended:**

The plasma display panel of claim 23 wherein the electrodes are data electrodes.

**Claim 17, as amended:**

The plasma display panel of claim 23 wherein the electrodes are scan electrodes.

**Claim 21, as amended:**

The plasma display panel of claim 23 further comprising:

A plurality of first diodes connecting the change up switch element first terminals to the change up signal, each first diode having a cathode connected to a corresponding change up switch element first terminal and an anode connected to the change up signal to prevent current from leaking into the change up signal; and

A plurality of second diodes connecting the change down switch element first terminals to the change down signal, each second diode having an anode connected to a corresponding change down switch element first terminal and a cathode connected to the change down signal to prevent current from leaking from the change down signal.

**Claim 22, as amended:**

The plasma display panel of claim 23 wherein the driver circuitry for the change up signal and the change down signal comprises:

a first inductor having a first end connected to a power source, and a second end connected to each change up switch element first terminal; and

a second inductor having a first end connected to a power source, and a second end connected to each change down switch element first terminal.

**Claim 23, as amended:**

A plasma display panel including a pair of substrates positioned to define a gap region therebetween, and groups of electrodes disposed in the gap region to form display lines composed of pixels, the plasma display panel further comprising:

a register capable of storing a plurality of display bits each bit representing a next state for a corresponding electrode;

a latch connected to the register and having outputs, each output representing a current state for a corresponding electrode;

logic circuits corresponding to the electrodes, each logic circuit generating a plurality of control signals based on the next state and the current state of the corresponding electrode;

each logic circuit further comprises a first input connected to the corresponding register bit;

a second input connected to the corresponding latch output; and

a combinational logic network receiving the first and second inputs and generating the plurality of control signals, the plurality of control signals including a change up control signal for selectively connecting the change up signal to the corresponding electrode, and a change down control signal for selectively connecting the change down signal to the corresponding electrode.

wherein the combinational logic network is configured such that the change up control signal is asserted when the corresponding electrode has a low current state and a high next state, and the change down control signal is asserted when the corresponding electrode has a high current state and a low next state; and

a plurality of change up switch elements, each change up switch element having an input connected to a change up control signal from a corresponding logic circuit, a first terminal connected to a change up signal, and a second terminal connected to the corresponding electrode; and

a plurality of change down switch elements, each change down switch element having an input connected to a change down control signal from a corresponding logic circuit, a first terminal connected to a change down signal, and a second terminal connected to the corresponding electrode; and

wherein the logic circuits are configured such that the logic circuit control signals substantially simultaneously connect the change up signal to electrodes having a low current state and a high next state, and the change down signal to electrodes having a high current state and a low next state; and

an oscillator circuit having a first sinusoidal output connected to each change up switch element first terminal, and a second sinusoidal output connected to each change down switch element first terminal, wherein the oscillator circuit is configured such that signals at the first and second sinusoidal outputs are about 180 degrees out of phase with each other.

**Claim 24, as amended:**

The plasma display panel of claim 23 wherein the register, the latch, the logic circuits, the plurality of change up switch elements, and the plurality of change down switch elements are formed as an integrated circuit.

**Claim 26, as amended:**

The system of claim 35 wherein the electrodes are data electrodes.

**Claim 27, as amended:**

**Claim 27, as amended:**

The system of claim 35 wherein the electrodes are scan electrodes.

**Claim 31, as amended:**

The system of claim 35 wherein the driver circuitry includes a change up driver including a first inductor and a change down driver including a second inductor.

**Claim 32, unamended:**

The system of claim 31 wherein the inductance of the first inductor is variable to match the loading conditions of the corresponding electrodes.

**Claim 33, unamended:**

The system of claim 31 wherein the inductance of the second inductor is variable to match the loading conditions of the corresponding electrodes.

**Claim 35, as amended:**

A system for driving a flat panel display having electrodes, the system comprising:

driver circuitry including a change up driver and a change down driver; and

logic circuits generating control signals for substantially simultaneously connecting the change up driver signal to corresponding electrodes having a low current state and a high next state and the change down driver signal to corresponding electrodes having a high current state and a low next state; and

wherein the driver circuitry includes an oscillator circuit; and

wherein the oscillator circuit provides a first voltage waveform corresponding to the change up driver and a second voltage waveform corresponding to the change down driver.

**Claim 36, unamended:**

The system of claim 35 wherein the first and second voltage waveforms have opposite phases.

**Claim 39, as amended:**

The system of claim 35 further including a ramp function generator for providing a ramp change up waveform corresponding to the change up driver and a ramp change down waveform corresponding to the change down driver.

**Claim 40, as amended:**

The system of claim 35 wherein the driver circuitry includes only passive electrical components.

**Claim 42, as amended:**

The plasma display panel of claim 48 wherein the electrodes are data electrodes.

**Claim 43, as amended:**

The plasma display panel of claim 48 wherein the electrodes are scan electrodes.

**Claim 44, as amended:**

The plasma display panel of claim 48 wherein the driver circuitry includes a change up driver formed by a first inductor and a change down driver formed by a second inductor.

**Claim 45, unamended:**

The plasma display panel of claim 44 wherein the inductance of the first inductor is variable to match the loading conditions of the corresponding electrodes.

**Claim 46, unamended:**

The plasma display panel of claim 44 wherein the inductance of the second inductor is variable to match the loading conditions of the corresponding electrodes.

**Claim 48, as amended:**

A plasma display panel having electrodes, the system comprising:

driver circuitry including a change up driver and a change down driver; and

logic circuits generating control signals for substantially simultaneously connecting the change up driver signal to data electrodes having a low current state and a high next state and the change down driver signal to data electrodes having a high current state and a low next state; and

wherein the driver circuitry includes an oscillator circuit; and

wherein the oscillator circuit provides a first voltage waveform corresponding to the change up driver and a second voltage waveform corresponding to the change down driver.

**Claim 49, unamended:**

The plasma display panel of claim 48 wherein the first and second voltage waveforms have opposite phases.

**Claim 52, as amended:**

The plasma display panel of claim 48 further including a ramp function generator for providing a ramp change up waveform corresponding to the change up driver and a ramp change down waveform corresponding to the change down driver.

**Claim 53, as amended:**

The plasma display panel of claim 48 wherein the driver circuitry includes only passive electrical components.